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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,901

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EXAMINER

POMPEY, RON EVERETT

ART UNIT

PAPER NUMBER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,901	Applicant(s) SCHWARZBAUER, HERBERT	
	Examiner RON E. POMPEY	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-55 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 27-55 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/28/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 27, 29-35, 38, 39, 42, 44-49 and 52 rejected under 35 U.S.C. 102(b) as being anticipated by Neugenbauer et al. (US 4349408).

Neugenbauer discloses the limitations of:

In re Claim 27: (New). A system comprising:

an electrical component (12, fig. 1a) provided with at least one electrical contact surface (14, fig. 1a);

an electrical insulating layer (18/20, fig. 1a), which is disposed on the component, the electrical insulating layer having an opening (25, fig. 1a) to expose and surround a portion of the contact surface, wherein the insulating layer having a lateral surface that delimits the opening; and

an electrical connecting lead (24, fig. 1a and 22, fig. 2) for electrically contacting the contact surface of the component, the electrical connecting lead comprising a metallization layer (24, fig. 1a) located on the lateral surface, such that the metallization layer meets the contact surface at an angle less than 90 degrees.

In re Claim 29: (New) The system as claimed in claim 27, wherein the metallization layer has a layer thickness within a range of from 0.5 μm to 30 μm (col. 6, Ins. 23-33).

In re Claim 30: (New) The system as claimed in claim 27, wherein the metallization layer has a multi-layered structure with at least two partial metallization layers arranged one upon the other (col. 6, Ins. 23-33).

In re Claim 31: (New) The system as claimed in claim 27, wherein the lateral surface of the insulating layer (the lateral top surface of the 18/20, fig. 1a), on which the metallization layer is located has at least one step.

In re Claim 32: (New) The system as claimed in claim 27, wherein the insulating layer has a layer thickness within a range of from 20 μm to 500 μm (col. 4, Ins. 58-68).

In re Claim 33: (New) The system as claimed in claim 27, wherein the insulating layer has a multi-layered structure with at least two partial insulating layers arranged one on top of the other (18/20, fig. 1a).

In re Claim 34: (New) The system as claimed in claim 27, wherein the insulating (18, fig. 1a) layer is formed by laminating at least one insulating foil onto the component (12, fig. 1a).

In re Claim 35: (New) The system as claimed in claim 34, wherein the lateral surface of the insulating layer faces (top lateral surface of 18/20, fig. 1a) the component (12, fig. 1a),

at least one part of the insulating foil (18, fig. 1a; col. 4, Ins. 1-5) is laminated onto the component (12, fig. 1a) in such a way that the insulating layer has a surface contour facing away from the component, and

a surface contour of the component is shown in the surface contour of the insulating foil that faces away from the component.

In re Claim 38: (New) The system as claimed in claim 37, wherein the metallization layer and/or the section is formed of at least one metal selected from the group consisting of aluminum, gold, copper, molybdenum, silver, titanium and tungsten (col. 6, Ins. 23-32).

In re Claim 39: (New) The system as claimed in claim 36, wherein the component is a semiconductor component.

In re Claim 42: (New) The system as claimed in claim 27, wherein the insulating layer has a plurality of openings arranged in a row or a matrix (col. 5, Ins. 28-50).

In re Claim 44: (New) The system as claimed in claim 27, wherein the metallization layer has a layer thickness within a range of from 2.0 μm to 20 μm (col. 6, Ins. 23-33).

In re Claim 45: (New) The system as claimed in claim 27, wherein the insulating layer has a layer thickness within a range of from 50 μm up to and including 200 μm (col. 4, Ins. 58-68).

In re Claim 46: (New) A method for producing a system comprising:
providing a component (12, fig. 1a) with an electrical contact surface (14, fig. 1a);

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producing an insulating layer (18/20, fig. 1a) on the component, the insulating layer having an opening (25, fig. 1a) to expose and surround a portion of the contact surface of the component so that the contact surface is freely accessible, the insulating layer having a lateral surface that defines the opening; and

locating a metallization layer (24, fig. 1a) of a connecting lead on the lateral surface of the insulating layer in such a way that the metallization layer meets the contact surface at an angle less than 90 degrees.

In re Claim 47: (New) The method as claimed in claim 46, wherein the insulating layer is formed by a process comprising: laminating at least one insulating foil (18/20, fig. 1a) onto the component; and producing an opening (25a, fig. 3c) in the insulating foil so that the contact surface of the component is exposed.

In re Claim 48: (New) The method as claimed in claim 47, wherein the insulating foil (18/20, figs. 1a and 3b) is laminated under a partial vacuum (cvd, ALE, col. 7, Ins. 5 - 22).

In re Claim 49: (New) The method as claimed in claim 47, wherein the opening (25, figs. 1a and 3a) in the insulating foil is made by laser ablation (col. 8, Ins. 31- 51).

In re Claim 52: (New) The method as claimed in claim 46, wherein the metallization layer and/or the insulating layer is formed by a vapor deposition method (cvd, ALE, col. 7, Ins. 5 - 22).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 28 and 43 rejected under 35 U.S.C. 103(a) as being unpatentable over Neugenbauer as applied to claim 27 above, in view of Seales (US 3945030).

5. Neugenbauer, as indicated above, discloses all the features of the claims **except those disclosed by** Seales.

a. Seales discloses:

In re Claim 28: (New) The system as claimed in claim 27, wherein the metallization layer (96/97.98, fig. 13) is oriented at an angle to the contact surface within a range of from 30° to 80° (col. 1, Ins. 55 – 68) .

In re Claim 43: (New) The system as claimed in claim 27, wherein the metallization layer is oriented at an angle to the contact surface within a range of from 50° to 70° (col. 1, Ins. 55-68).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the orientation angle of the metallization layer in Neugenbauer, with metallization layer being oriented at an angle to the contact surface within a range of from 30° to 80° as taught by Seales, because it makes it possible to obtain excellent contact metallization as disclosed in column 2, lines 24-28.

6. Claims 36, 37, 53, 54 and 55 rejected under 35 U.S.C. 103(a) as being unpatentable over Neugenbauer as applied to claim 27, 36, 46 and 53 above, in view of Liu et al. (US 4988412).

7. Neugenbauer, as indicated above, discloses all the features of the claims **except those disclosed by** Liu.

b. Liu discloses:

In re Claim 36: (New) The system as claimed in claim 27, wherein the connecting lead has a section (60, fig. 4D) formed of a material different from the metallization layer (30/40, fig. 4D), which section is located on the insulating layer and is provided with a thickness greater than that of the metallization layer.

In re Claim 37: (New) The system as claimed in claim 36, wherein the section of the connecting lead is electrodeposited (col. 8, Ins. 20-33).

In re Claim 53: (New) The method as claimed in claim 46, wherein a section (60, fig. 4D) of the connecting lead is formed separately from the metallization layer (30/40, fig. 4D), the section being produced on the insulating layer to have a thickness which exceeds that of the metallization layer.

In re Claim 54: (New) The method as claimed in Claim 53, wherein a metal is electrodeposited to produce the section on the insulating layer (col. 8, Ins. 20-33).

In re Claim 55: (New) The method as claimed in claim 53, wherein, while the section (60, fig. 4D) is being produced, the opening in the insulating layer (26, fig. 4D) is closed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the connecting lead in Neugenbauer, with a section of the connecting lead is formed separately from the metallization layer, the section being produced on the insulating layer to have a thickness which exceeds that of the metallization layer (In re claims 36 and 53) and wherein the section of the connecting lead is electrodeposited (In re claims 37 and 54) by Liu, because as disclosed in column 2, lines 24-28.

8. Claims 40 and 41 rejected under 35 U.S.C. 103(a) as being unpatentable over Neugenbauer as applied to claim 39 above, in view of Admitted Prior Art (APA).

9. Neugenbauer, as indicated above, discloses all the features of the claims **except those disclosed by APA**.

c. APA discloses:

In re Claim 40: (New) The system as claimed in claim 39, wherein the semiconductor component is a power semiconductor component ([0003]).

In re Claim 41: (New) The system as claimed in claim 40, wherein the power semiconductor component is a component selected from the group consisting of a diode, a MOSFET, a IGBT, a thyristor and a bipolar transistor ([0003]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the integrated circuit(IC) in Neugebauer, with the power semiconductor component as taught by APA, because Neugebauer is silent to what kind of IC is being formed.

10. Claims 50 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neugenbauer as applied to claim 46 above, in view of Kao et al. (US 6338361).

11. Neugenbauer, as indicated above, discloses all the features of the claims **except those disclosed by** Kao.

d. Kao discloses:

In re Claim 50: (New) The method as claimed in claim 46, wherein in order to produce the insulating layer (photoresist) on the component, a compressed air process is used wherein paint is applied to the component (col. 3, lns. 27-45).

In re Claim 51: (New) The method as claimed in claim 50, wherein the paint is a photo-sensitive paint (photoresist; col. 3, lns. 27 - 45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the insulating layer and how it is formed in Neugenbauer, with the photoresist paint method as taught by Kao, because using a photoresist as the insulating layer reduces steps, via a separate masking step is not need to form the opening in the insulating layer, which reduces cost of making the device.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to RON E. POMPEY whose telephone number is (571)272-1680. The examiner can normally be reached on 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on (571) 272-2194. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Walter L. Lindsay, Jr./
Primary Examiner, Art Unit 2812

/Ron Pompey/
Examiner, Art Unit 2812
08/26/09